

ABSTRAK

PENGEMBANGAN E-MODUL BERBASIS JUCAMA BERBANTU ANDROID UNTUK MENINGKATKAN KEMAMPUAN PEMECAHAN MASALAH MATEMATIS SISWA SMK

Oleh

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Penelitian ini bertujuan untuk: (1) mendeskripsikan proses pengembangan produk *e-modul* berbasis JUCAMA berbantu android bagi siswa SMK, (2) menghasilkan produk *e-modul* berbasis JUCAMA berbantu android bagi siswa SMK yang valid dan praktis, (3) menguji efektivitas produk *e-modul* berbasis JUCAMA berbantu android dalam meningkatkan kemampuan pemecahan masalah matematis siswa SMK. Jenis penelitian ini adalah penelitian pengembangan menggunakan model ADDIE (*Analyze, Desain, Develop, Implement, Evaluate*). Sampel penelitian ini adalah siswa kelas X jurusan DPIB (kelas eksperimen) dan TKP (kelas kontrol) SMK Negeri 3 Metro. Instrumen penelitian meliputi lembar observasi, angket ahli dan kepraktisan, serta soal kemampuan pemecahan masalah. Teknik pengumpulan data dilakukan dengan cara observasi, wawancara, dan tes. Berdasarkan hasil dan pembahasan disimpulkan : (1) proses pengembangan produk menggunakan tahapan pengembangan ADDIE meliputi : (a) tahap *analyze* yaitu menganalisis kebutuhan pembaruan bahan ajar dengan observasi dan wawancara, (b) tahap *desain* yaitu melakukan desain produk awal menggunakan program *Flip PDF Corporate Edition 2.4.9.18* dan aplikasi android menggunakan *iSpring Suite 10* dan *convert* dengan aplikasi *Website 2 APK Builder Pro*, (c) tahap *develop* yaitu melakukan validasi ahli (materi, media, dan desain) dan uji kepraktisan, (d) tahap *implement* yaitu menggunakan *e-modul* berbasis JUCAMA berbantu android yang valid dan praktis dalam pembelajaran, (e) tahap *evaluate* yaitu melakukan evaluasi pada setiap tahapan pengembangan, (2) *e-modul* berbasis JUCAMA berbantu android valid (76,2%) dan sangat praktis (84,25%), (3) *e-modul* berbasis JUCAMA berbantu android efektif untuk meningkatkan kemampuan pemecahan masalah dengan nilai signifikan uji t perbedaan dua rata-sebesar $0,000 < 0,05$ dan *N-Gain* sebesar 0,3763 dengan kategori sedang.

Kata Kunci : Android, *E-modul*, JUCAMA, Kemampuan Pemecahan Masalah.

ABSTRACT

DEVELOPMENT E-MODULES BASED JUCAMA ASSISTED BY ANDROID TO IMPROVE THE MATHEMATICAL PROBLEM SOLVING ABILITY OF VOCATIONAL SCHOOL STUDENTS

By

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This study aims to: (1) describe the process of developing JUCAMA-based e-module products assisted by Android for SMK students; (2) produce an JUCAMA-based e-module product assisted by Android for SMK students that is valid and practical; and (3) test the effectiveness of JUCAMA-based e-module products assisted by Android in improving the mathematical problem-solving skills of vocational high school students. This type of research is development research using the ADDIE model (Analyze, Design, Develop, Implement, and Evaluate). The sample of this study were students of class X majoring in DPIB (experimental class) and TKP (control class) at SMK Negeri 3 Metro. The research instruments included observation sheets, expert and practical questionnaires, as well as problem-solving abilities. Data collection techniques were carried out by means of observation, interviews, and tests. Based on the results and discussion it was concluded: (1) the product development process uses the ADDIE development stages including: (a) the analyze stage, namely analyzing the needs for updating teaching materials by observation and interviews, (b) the design stage, namely carrying out initial product designs using the Flip PDF Corporate Edition program 2.4.9.18 and the android application uses iSpring Suite 10 and converts it with the Website 2 APK Builder Pro application, (c) the develop stage, namely is conducting expert validation (material, media, and design) and practicality testing, (d) the implement stage, namely is using JUCAMA based e-module product assisted by android that are valid and practical in learning, (e) the evaluate stage, namely evaluating at each stage of development, (2) JUCAMA based e-module product assisted by android are valid (76.2%) and very practical (84.25%), (3) A JUCAMA-based e-module product assisted by Android is effective for improving problem-solving abilities, with a significant value of the t-test difference between two averages of $0.000 < 0.05$ and an N-Gain of 0.3763 in the medium category.

Keywords: Android, e-module, JUCAMA, problem-solving ability